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UNIVERSITY
OF
DENTISTRY

Faculty of Dentistry

Examinations

1961

6037

HRA : 1648
22.9.61

Preprofessional years
Anthropology

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Preprofessional Year

ANTHROPOLOGY

Examiner - J. N. Emerson

Answer all questions. All are of equal value.

1. Write a brief paragraph on five of the following:
   (a) The development of the mandible in fossil man.
   (b) The development of the skull in fossil man.
   (c) The development of the limb proportions and erect posture in fossil man.
   (d) The evidence of racial features in fossil man.
   (e) The development of cranial capacity in fossil man.
   (f) The geographic and temporal distribution of fossil man.

2. Where would you expect to find the remains of more large prehistoric Indian villages, in northern Ontario, or in southern Ontario? Why? What factors would help you find such villages? Outline briefly three such finds known to you.

3. A series of lectures in anthropology at first contact may appear to be the study of the "queer" customs of native peoples. However, when one ponders the problem more deeply, many of these customs can be understood in terms of deep human needs. Sometimes the student finds the native custom a "mirror" which reflects the meaning of behaviour in his own culture. Discuss these thoughts with reference to pig-raising in Alor, the potlatch on the North West Coast, and vision-seeking amongst the Plains Indians.

4. Our modern day living is characterized by the development of "suburbia" and a desire to return to the woods and the open spaces. Would you say that this represents an attempt to escape from civilization and to return to the folk society way of life? Do you think this could be successful? Illustrate with examples drawn from folk societies known to you.

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UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Pre-professional Year

CHEMISTRY 108
General Chemistry

Examiner - S. S. Danyluk

Logarithm cards supplied; slide rules permitted.
Total marks 150.

Marks

20 1. Discuss or define, with the aid of examples wherever possible, four of the following:

(a) chemical and physical atomic weight scales
(b) isotopes
(c) Raoult's Law
(d) allotropy
(e) gram equivalent weight
(f) osmotic pressure.

15 2. (a) List the number of protons, neutrons, and electrons for each of the following elements:

$${}_{18}X^{40} \qquad {}_{19}Y^{39} \qquad {}_{20}Z^{40}$$

(b) Compare the electronic configuration of the above elements (1s, 2s, ...) and state which

(i) has the lowest ionization potential,
(ii) will be chemically inert,
(iii) will form the most basic hydroxide,
(iv) has the most probable oxidation state of +2.

(over)

Marks

20 3. (a) Briefly discuss the type of bond formed when

(i) two fluorine atoms combine,

(ii) a fluorine atom combines with a cesium atom,

(iii) a boron trifluoride molecule combines with an ammonia molecule.

(b) Compare the properties of compounds in which the bonding is mainly ionic with the properties of compounds in which the bonding is mainly covalent.

(c) Write electron dot formulae showing the arrangement of the bonding electrons in each of the following: CCl_4, NH_4F, H_2CO_3. Include resonance forms where applicable.

20 4. (a) Illustrate graphically the variation of vapour pressure with temperature for (i) pure water over the range -5° to $100^\circ C$ and (ii) a one molal solution of potassium chloride in water over the same temperature range, noting in particular the vapour pressure curves for ordinary water, and ice. Label the diagram clearly, including all pertinent units and numerical values.

(b) When 5.61 grams of yellow phosphorus are dissolved in 100 grams of benzene, the boiling point is raised $1.14^\circ C$. What is the apparent molecular weight of phosphorus in benzene? What is the formula of phosphorus in benzene solution?

Molal boiling point elevation constant for benzene, $2.53^\circ C$.

Atomic weight: $P = 30.7$

Marks

20 5. A certain metal oxide dissociates above room temperature according to the reaction,

$$2\ MO_{(s)} \rightleftharpoons 2\ M_{(g)} + O_{2(g)}$$

(a) If the dissociation pressure is 387 mm at 420°C, what is the dissociation constant at this temperature?

(b) If the reaction occurs in a 1 litre vessel and the decrease in weight of the metal oxide is 1.290 grams at 420°C, calculate the equivalent weight of the metal.

Gas constant, $R = 0.08205$ litre-atm. $deg.^{-1}$ $mole^{-1}$

Atomic weight: $O = 16.00$

15 6. The following electrochemical cell is set up at 25°C:

$$Fe;\ Fe^{++}(m=1)\ \|\ Br^{-}(m=1);\ Br_2,\ Pt$$

(a) Write a balanced equation for the overall cell reaction.

(b) Calculate the electromotive force for the cell and indicate whether the reaction is spontaneous.

(c) What is the electromotive force of the cell if the Br^{-} ion concentration is 0.05 m?

Standard Oxidation Electrode Potentials:

$$Fe(s) \rightleftharpoons Fe^{++} + 2\ e^{-} \qquad E^{o} = +0.440\ v$$
$$2\ Br^{-} \rightleftharpoons Br_2(l) + 2\ e^{-} \qquad E^{o} = -1.065\ v$$

One Faraday = 96,500 coulombs.

Gas Constant, $R = 8.31$ joules $deg.^{-1}$ $mole^{-1}$.

(over)

Marks

20 7. (a) Lactic acid, $CH_3CHOHCOOH$, is a weak monoprotic acid. In a solution prepared at 25°C by dissolving 22.5 grams of lactic acid in enough water to give 500 ml of solution, the lactic acid is 1.78 per cent ionized. Calculate the ionization constant of lactic acid.

Atomic weights: C = 12.0, H = 1.0, O = 16.0

(b) What is the pOH of a 0.10 molar solution of ammonium hydroxide at 25°C if the solution contains in addition 5.34 grams of ammonium chloride per litre of solution?

Atomic weights: N = 14.0, Cl = 35.5, O = 16.0

Ionization constant of ammonium hydroxide, K_i, 1.75×10^{-5} at 25°C.

20 8. Answer any two parts of this question.

(a) The cesium bromide lattice consists of two interpenetrating simple cubic lattices with the unit cell containing the equivalent of one Cs^+ ion and one Br^- ion. If the edge of the unit cell is 4.28A° what is the density of cesium bromide?

Atomic weights: Cs = 132.9, Br = 79.9

Avogadro's number: $N = 6.02 \times 10^{23}$

(b) The measured decay constant for the radioactive element $_{83}Ra^{210}$ is 0.138 day^{-1}.

(i) What is the half life for the decay process?

(ii) How long will it take for 90% of a given quantity of $_{83}Ra^{210}$ to disintegrate?

(c) One litre of 0.1 M aqueous $NiCl_2$ was electrolyzed for 20 minutes using platinum electrode and a steady current of 0.05 ampere.

(i) If the sole reaction at the anode was an oxidation of Cl^- ions, calculate the volume of chlorine gas evolved, measured at one atmosphere pressure and 0°C.

(ii) What is the gain in weight of the anode?

R = 0.08205 litre-atm., deg^{-1}, $mole^{-1}$.

One Faraday = 96,500 coulombs

Atomic weights: Ni = 58.7, Cl = 35.5

UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Pharmacy

ANNUAL EXAMINATIONS, 1961

First Year

ENGLISH COMPOSITION

Examiners - The Staff in English

Write an essay of approximately 1,000 words on one of the following statements. You may support the statement, refute it, or modify it. The essay should be carefully organized, coherent, and logical. Paragraphing, sentence structure, basic grammar, spelling, and punctuation are important.

(1) Compulsory health insurance for all citizens in a nation necessarily leads to government control and operation of all health services (medical, dental, pharmaceutical).

(2) "Genius is an infinite capacity for taking pains."

(3) In theory satire has ample justification as a literary form, but there are many abuses and limitations in its practice.

(4) Many professional practitioners (physicians, dentists, pharmacists, lawyers) are like salesmen in that much of their success depends not only on being liked, but on being well-liked.

First Dental Year

English Literature

UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Pharmacy

ANNUAL EXAMINATIONS, 1961

First Year

ENGLISH LITERATURE

Examiners - The Staff in English

Answer FOUR questions in all: question A, and one from each of parts B, C, and D. Students are advised to give 30 minutes to answering each question, and 30 minutes to planning and re-reading answers.

PART A

1. Identify the speaker and the situation, and comment in a sentence or two on the significance of five of the following quotations:

(a) I have not one word of comfort -- you deserve this. You have killed yourself.

(b) I only with an oaken staff will meet thee.

(c) When the soul of a man is born in this country there are nets flung at it to hold it back from flight.

(d) O, my fortunes have
Corrupted honest men!

(e) I realized what a ridiculous lie my whole life has been!

(f) Well, the matter is, sir, that you can't take a girl up like that as if you were picking up a pebble on the beach.

(g) Too live the life grew, golden and not gray.

PART B

2. Compare Antony's relations with Cleopatra and Samson's with Dalila, showing their significance for the major issues in Antony and Cleopatra and Samson Agonistes.

3. "Whatever weaknesses in character he may have, the tragic hero possesses qualities which win not only our sympathy but also our admiration." In the light of this statement, compare two of the following: Antony, Samson, Willy Loman.

PART C

4. "Gulliver is not Swift but the instrument of Swift's satire." Discuss.

5. "Fielding illuminates his characters by establishing contrasts between them." Discuss.

6. Discuss the relation between character and setting (or environment) in Wuthering Heights OR in A Portrait of the Artist as a Young Man.

PART D

7. Indicating differences in the techniques of the poems, compare the treatment of the theme of art in two of the following: "Ode on a Grecian Urn", "Andrea del Sarto", "Terence, This is Stupid Stuff", "Musée des Beaux Arts".

8. Analyse one of the following poems, considering such matters as theme, mood, form, and techniques: "The Rape of the Lock", "The Bishop Orders his Tomb", "Sailing to Byzantium", "The Love Song of J. Alfred Prufrock".

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UNIVERSITY OF TORONTO
Faculty of Dentistry - Pre-professional Year
Faculty of Forestry - First Year

ANNUAL EXAMINATIONS, 1961

PHYSICS

Examiner - D. G. Ivey

Slide Rules may be used. Clark's Tables to be provided.
Answer Question 1 and eight others.

1. (a) A displacement-time graph is plotted for the motion of an object. Indicate how the velocity and acceleration of the object at any instant can be obtained from these data.

(b) Torque and work can be expressed in the same units. State how they are different.

(c) A circus motorcycle travels at high speed in a horizontal circle inside a vertical cylinder. What exerts the centripetal force on the vehicle? What holds it up?

(d) A professor spins in a chair on a frictionless vertical axis, holding a pair of weights at arms length. He pulls them in. Discuss the total angular momentum and the total energy of the system.

(e) Distinguish between each of the following pairs:

kinematics and dynamics
gravitational field and potential
periodic motion and simple harmonic motion
heat capacity and specific heat capacity
latent heat of fusion and of sublimation
triple point and critical point
refrigerator and heat pump
chromatic and spherical aberration

(over)

(f) Identify all the symbols used in each of the following relations:

$$f_k = \mu_k N \qquad \Delta U = Q - W$$

$$V = -\frac{GM}{R} \qquad \Delta S = \frac{\Delta Q}{T}$$

$$p = \frac{1}{3} nm\overline{v^2} \qquad E = hf$$

$$pv = RT \qquad \lambda = \frac{h}{mv}$$

2. The streets are icy. Car A, weight 2000 lbs., slides into the intersection from the north at 30 m.p.h. Car B, weight 3000 lbs., slides in from the east at 40 m.p.h.

(a) Calculate the velocity of car B relative to car A before the collision.

(b) They meet and stick together. Calculate their velocity after the collision.

3. A meter stick of mass 500 gm is mounted horizontally, sticking straight out from a vertical wall. The end of the stick at the wall is held by a frictionless pivot, the other end is held by a thread which runs from the end of the stick to a point on the wall 1 meter above the pivot.

(a) Calculate the tension in the thread.

(b) The thread breaks. Calculate the speed of the lower end of the stick just before it hits the wall.

4. A flywheel 6" in radius is mounted in frictionless bearings with its axis horizontal. A thread is wound several times around the rim, and a 1 lb. weight is tied to the free end. The weight, starting from rest, descends 6 ft. to the floor in 1 second.

(a) How many revolutions are made by the flywheel while the weight is descending?

(b) What is the moment of inertia of the flywheel?

(c) What is the final rotational kinetic energy of the flywheel?

5. (a) Calculate the acceleration due to gravity at a height of 1000 miles, and the speed of a satellite in a circular orbit at this height (take earth radius as 4000 miles).

(b) If the earth were to shrink to half its diameter, its mass remaining the same, what would be the force in dynes on a 1 gm mass at the surface?

6. A metal rod of Young's modulus 2×10^6 kgm/cm^2 and linear coefficient of thermal expansion 1.5×10^{-5} per C° is 3 cm^2 in cross sectional area and 50 cm long. If its temperature is raised 20 C°, what force would have to be applied to its ends to keep it from expanding?

7. (a) What would be the height in feet of a water barometer if the pressure is one atmosphere?

(b) An air bubble 1 mm in diameter escapes from a submarine at a depth of 200 ft. The temperature at this depth is 2°C, and at the surface is 10°C. Calculate the diameter of the bubble when it reaches the surface.

8. A heat engine operating in a cycle between 100°C and 0°C has one-half the efficiency of an ideal engine operating between reservoirs at these temperatures. Calculate the mechanical power in watts produced by the engine from the heat released by condensing one kgm of steam per minute. (Latent heat of vapourization of water 540 cal/gm)

9. (a) The e.m.f. of a cell measured by a potentiometer is 1.76 volts. A voltmeter of resistance 150 ohms connected across the cell reads 1.67 volts. Calculate the internal resistance of the cell.

(b) A galvanometer of resistance 500 ohms gives a full scale deflection for a current of 200 microamperes. Show how to convert it to an ammeter with a range 0 - 5 amperes.

(over)

10. A steady potential difference of 100 volts across a certain coil produces a current of 12.5 amperes through the coil. A 60 cycle/sec alternating p.d. of 100 volts across the coil produces a current of 8 amps. Calculate (a) the resistance, (b) the reactance, (c) the inductance of the coil, and (d) the capacitance of a capacitor which will resonate with the coil at this frequency.

11. A beam of electrons is accelerated by a potential difference of 300 volts, and then passes horizontally into the space between two horizontal metal plates. The plates are 1 mm apart, there is a potential difference between them of 50 volts, and the upper plate is positive. Determine the magnitude and direction of the magnetic field which can be applied to ensure that the beam of electrons is not deflected by the charged plates. (Draw a clear diagram to show the direction of the field.) ($e = 1.6 \times 10^{-19}$ coulomb, $m = 9 \times 10^{-31}$ kgm)

12. (a) A lens placed 1 foot from an object produces a virtual image twice as large as the object. Describe the lens.

(b) A beam of light falls on the upper surface of a cube of glass (index of refraction $\sqrt{2}$) parallel to a side face of the cube, at an angle of incidence 45°. The refracted ray hits a vertical face of the cube. Show that it will be totally reflected.

13. (a) Show that 1 atomic mass unit is equivalent to 931 Mev.

(b) Under some conditions a γ-ray photon disappears and an electron-positron pair appears. Calculate the minimum energy of a photon for which this is possible, and the wavelength of the corresponding γ-radiation.

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, APRIL, 1961

PRE-PROFESSIONAL ZOOLOGY

Parts A and B to be written in separate books

PART A

1. Describe briefly four of the following. Use diagrams.

(a) The "stretch reflex" of the mammalian heart.
(b) The reflex involved in breathing movements in mammals.
(c) The distribution and function of the parasympathetic fibres of the vagus nerve in mammals.
(d) The function of the inner ear of fishes.
(e) Forward progression in Paramoecium.

2. (a) What brought about the "oxygen revolution" in the evolution of the organic world?

(b) What effects did this have on the physical world?
(c) What was the effect on organisms?

3. Using diagrams describe the processes involved in gastrulation in amphibia.

PART B

4. Write a brief explanatory note on five of the following. Use diagrams to illustrate your answer.

Pseudopodia, parapodia, perisarc, prostomium, hypobranchial artery, renal portal system, blastocoel, atrium of amphioxus.

5. By means of "stick" diagrams indicate the components of the anterior limb of a bird, a frog and a cat. Discuss the significance of the differences shown.

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

First Dental Year

BIOCHEMISTRY

Examiner - G. E. Connell

Answer FOUR questions.

1. Discuss the regulatory mechanisms which might control the rate of glycogen breakdown and lactic acid accumulation in a muscle cell contracting under anaerobic conditions.

2. Name four coenzymes which are related in chemical structure to B-vitamins. Describe in detail two reactions in which any of these coenzymes take part.

3. Describe briefly the structure of deoxyribonucleic acid and cite evidence which suggests that DNA may be the chemical substance of genes.

4. Write brief notes on three of the following:
   (i) the role of collagen in calcification,
   (ii) the physiological importance of phospholipids,
   (iii) the effect of changes in pH on the rates of enzyme reactions,
   (iv) the specificity of carboxypeptidase.

5. Discuss the transport of carbon dioxide in the blood.

First Dental Year
Comparative Dental Anatomy

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

First Dental Year

COMPARATIVE DENTAL ANATOMY

Examiner - C. S. Churcher

Answer Question Number ONE and any THREE other questions. Whenever appropriate, diagrams should be used to illustrate your answers.

1. (a) Define the terms 'incisors, canines, premolars and molars' with reference to the skull.
(b) Explain the normal functions of each of these types of tooth and also give examples of aberrant adaptation or modification.
(c) Trace the development of heterodonty in tetrapod vertebrates, beginning with the Labyrinthodontia and paying particular attention to herbivorous dentitions.

2. Give an account of the development of the placoid scale. Why is this scale considered homologous with the elasmobranch tooth? Discuss heterodonty in Chondrichthyes including modern sharks, rays, and chimeras as well as primitive sharks, bradydonts and hybodonts.

3. Discuss with diagrams 'Modifications of Dentitions to suit the Diet', using either Mesozoic Reptilia or Cenozoic Mammalia to illustrate the discussion.

4. Give an account of the teeth in snakes. Explain their structure and function and that of any associated structures, and relate these to diet.

5. Discuss parallelism and convergence in fishes, reptiles and mammals. Use dentitions and diets for your examples and give examples from all three classes if possible.

6. Show in a few lines what is meant by FIVE of the following terms -

Dental Formula; Stratum Malpighii; vestibular band; morphogenetic field; labyrinthodont; isodont; durophagous; parotid gland; mammal-like reptiles; branchial arches I and II.

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

First Dental Year

DENTAL ANATOMY

1. (a) Describe the angulation of the permanent teeth in the jaws, and discuss its significance in maintaining a stable arch.

(b) Describe the interdigitation of the teeth of an eight year old child, when the teeth are in contact in centric occlusion.

Answer in a separate examination book.

2. Write brief notes on the following:
   - (a) The lymphatic drainage of the tongue.
   - (b) The blood supply to the brain.
   - (c) Structures derived from the third pharyngeal arch.
   - (d) The tympanic cavity.
   - (e) The porta hepatis.

3. Give a detailed description of the ramus of the mandible under the headings:
   - (a) Morphology.
   - (b) Attachments.
   - (c) Relations.

4. (a) Describe the structure of the thoracic cage and comment on the mechanisms of respiration.

(b) Outline the course, relations, and functions of the lingual nerve.

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

First Dental Year

MICROSCOPIC ANATOMY

Examiner - K. J. Paynter

1. Discuss dentin under each of the following headings:
(a) origin (b) microscopic structure, and (c) changes in structure with age.

2. Describe in detail, the microscopic structure of a kidney nephron.

3. Describe the microscopic structure of blood vessels, and relate their structure to function.

4. Describe the development and microscopic structure of the alveolar process, and tell how it is adapted to the function of the teeth.

5. Describe the microscopic structure of the pituitary gland, and discuss the significance of its vascular supply.

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UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

First Dental Year

CHEMISTRY 216
Organic Chemistry

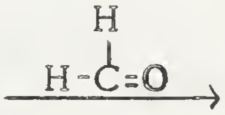
Examiner - R. R. Hiatt

No aids allowed.

Marks

(50%) 1. Write the structures of the indicated organic compounds (A, B, C, etc.) produced in the following reaction sequences:

(a) methyl iodide $\xrightarrow{Na}$ A $\xrightarrow[light]{Cl_2}$ B $\xrightarrow{KOH}$ C



(b) propene $\xrightarrow{HBr}$ A $\xrightarrow{Mg}$ B $\xrightarrow{H-\overset{H}{\overset{|}{C}}=O}$ C

(c) chlorobenzene $\xrightarrow[Na]{CH_3CH_2Cl}$ A $\xrightarrow[Fe]{Cl_2}$ B $\xrightarrow[light]{Cl_2}$ C

(d) acetaldehyde $\xrightarrow{KMnO_4}$ A $\xrightarrow[H^+]{CH_3OH}$ B $\xrightarrow{NaOH}$ C + D

(e) 1-butanol $\xrightarrow[360^\circ]{Al_2O_3}$ A $\xrightarrow{Br_2}$ B $\xrightarrow{KOH}$ C

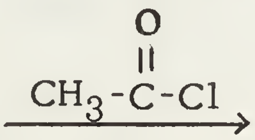
(f) ethylamine $\xrightarrow{HNO_2}$ A $\xrightarrow[220^\circ]{H_2SO_4}$ B $\xrightarrow[H_2SO_4]{K_2Cr_2O_7}$ C

(g) diphenylmethanol $\xrightarrow{KMnO_4}$ A $\xrightarrow{NH_2OH}$ B

(h) benzene $\xrightarrow[AlCl_3]{CH_3Cl}$ A $\xrightarrow[H_2SO_4]{HNO_3}$ B $\xrightarrow{KMnO_4}$ C

(i) CaC_2 $\xrightarrow{H_2O}$ A $\xrightarrow{Na}$ B $\xrightarrow{CH_3I}$ C

(j) 1-pentanol $\xrightarrow{K}$ A $\xrightarrow{CH_3CHBrCH_3}$ B $\xrightarrow{2HI}$ C + D



(k) phenol $\xrightarrow{Br_2}$ A $\xrightarrow{CH_3-\overset{O}{\overset{\|}{C}}-Cl}$ B $\xrightarrow{NaOH}$ C

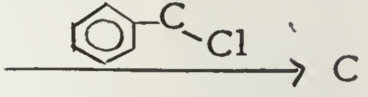
(over)

Marks

(l) nitrobenzene $\xrightarrow[HCl]{Fe}$ A $\xrightarrow{HNO_2}$ B $\xrightarrow{phenol}$ C

(m) acetaldehyde $\xrightarrow[NH_3]{HCN}$ A $\xrightarrow[H^+]{H_2O}$ B $\xrightarrow[H^+]{CH_3CH_2OH}$ C

(n) glycine $\xrightarrow{ClCH_2\overset{O}{\overset{\|}{C}}-Cl}$ A $\xrightarrow{NH_3}$ B



C

(o) ethene $\xrightarrow{Br_2}$ A $\xrightarrow{KOH}$ B $\xrightarrow{AgNO_3}$ C

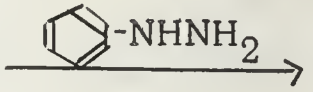
(p) 2-phenyl-2-propanol $\xrightarrow{HBr}$ A $\xrightarrow{NaOH}$ B $\xrightarrow[Pt]{H_2}$ C

(q) 2-methyl-1-butanol $\xrightarrow{HBr}$ A $\xrightarrow{NaCN}$ B $\xrightarrow[H^+]{H_2O}$ C

(r) propylamine $\xrightarrow{CH_3I}$ A $\xrightarrow{NaOH}$ B $\xrightarrow{CH_3I}$ C

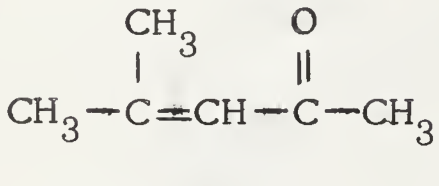
(s) 2-butenal $\xrightarrow[Pt]{H_2}$ A $\xrightarrow{CH_3CH_2CH_2\overset{O}{\overset{/\!/}{C}}-Cl}$ B $\xrightarrow[CH_3CH_2OH]{Na}$ C

(t) 3-pentanol $\xrightarrow[H_2SO_4]{K_2Cr_2O_7}$ A $\xrightarrow[NaOH]{Br_2}$ B



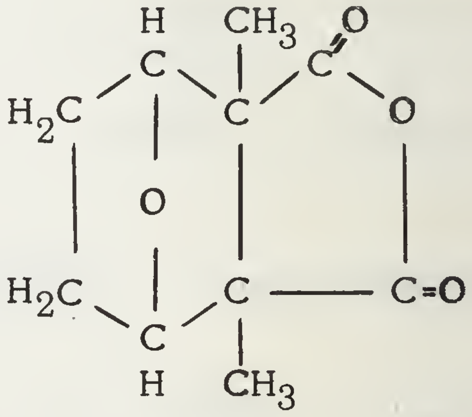
C

(20%) 2. Consider the following compounds:



$$CH_3-\overset{\overset{CH_3}{|}}{C}=CH-\overset{\overset{O}{\|}}{C}-CH_3$$

(A)



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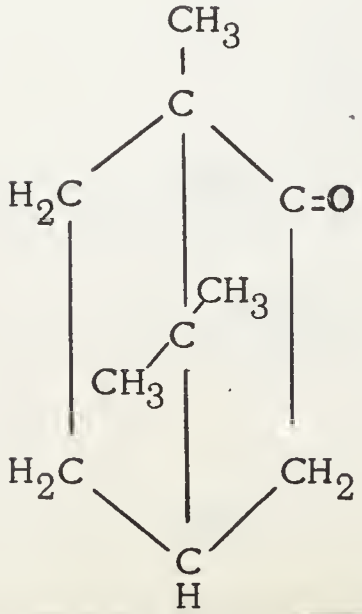
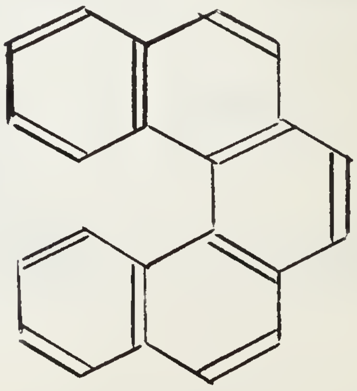
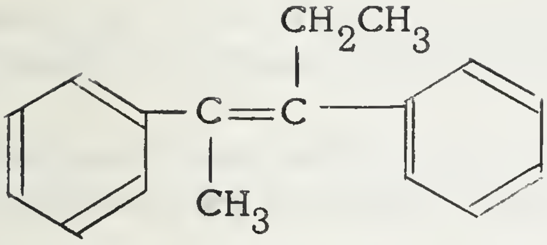
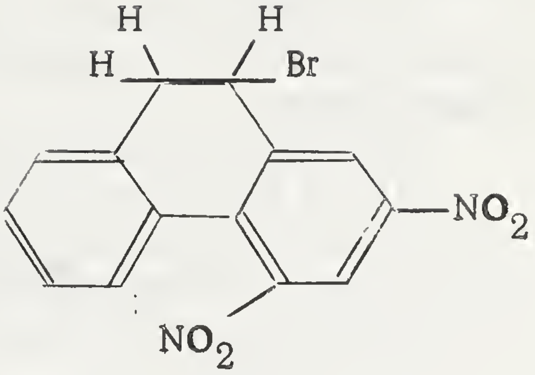




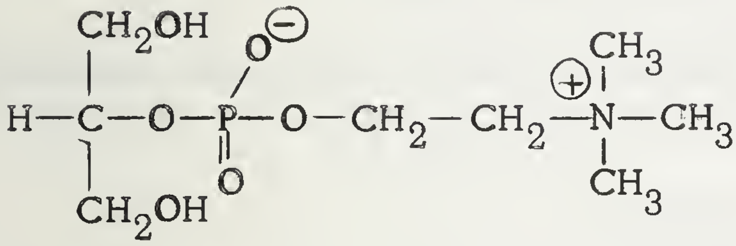
(D)



(E)

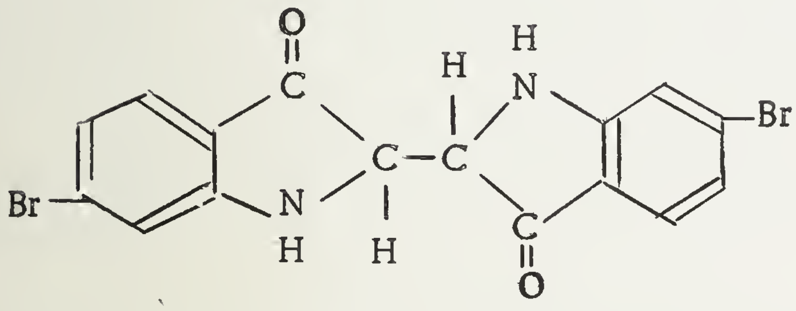


(F)

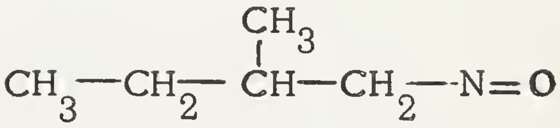


$$\underset{CH_2OH}{\overset{CH_2OH}{H-C}}-O-\underset{O}{\overset{O^{\ominus}}{P}}-O-CH_2-CH_2-\overset{\oplus}{\underset{CH_3}{\overset{CH_3}{N}}}-CH_3$$

(G)

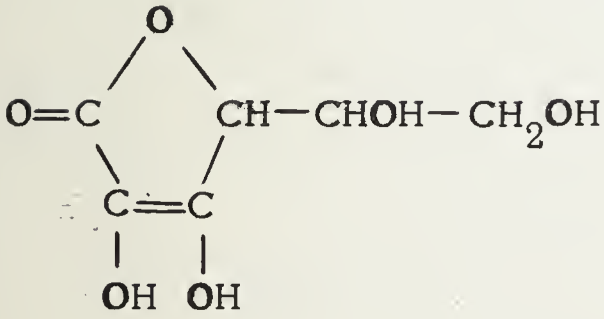


(H)

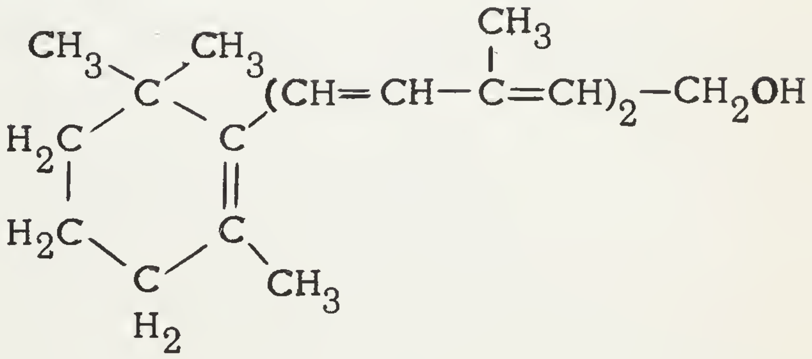


$$CH_3-CH_2-\overset{CH_3}{CH}-CH_2-N=O$$

(I)



(J)



(K)

(over)

Marks

(a) Which of these compounds would be coloured? Of those compounds you have chosen, which one would absorb the longest wave lengths of light?

(b) Which of these compounds would rotate plane polarized light? Choose one of the compounds you have picked and draw one of its diasteriomers.

(c) Which of these compounds could exhibit cis-trans isomerism?

(d) If 1.96 grams of compound (B) were burned in an atmosphere of O_2 what weight of CO_2 would be given off? What weight of H_2O? If 4.22 grams of compound (H) were treated with HNO_2 (Van Slyke test) how many grams of N_2 would be released?

Atomic weights: H = 1, C = 12, N = 14, O = 16, Br = 80.

(30%) 3. Synthesize, using as starting materials any compounds containing 3 or fewer carbon atoms, and any inorganic materials, the following compounds:

(a) 4-methyl-3-penten-2-one
(b) 2-methylpropyl propionate
(c) alanylalanine

Second Dental Year

Bacteriology

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Second Dental Year

BACTERIOLOGY ✓

1. Describe the morphological components of a bacterial cell. What is their chemical composition and their function.

2. (a) Name and explain the action of five bacterial enzymes contributing to the invasiveness of micro-organisms.
   (b) Describe the pharmacological action of four bacterial exotoxins.

3. (a) Draw a diagram showing the incidence of organisms in blood, faeces and urine and the titer of antibodies in the circulation during the first seven weeks of a case of enteric fever.
   (b) What are the laboratory procedures to isolate and identify the causative agent in the first and fourth week of the disease.

4. (a) Describe the differences in the pathology of the first infection and reinfection with M. tuberculosis. What mechanisms are involved.
   (b) Give a concise account of the laboratory procedure to identify and type the organism from a sputum sample.

5. Describe briefly the antigenic properties and the pathogenesis of polio virus.

6. Explain concisely how to isolate and identify five of the following organisms from the bacterial flora of man.

Pneumococcus
Bacterium coli
N. sicca
Haemolytic streptococci
Lactobacillus
B. proteus
Cor. Hoffmani

7. Discuss briefly the factors of the host-organism relation which influence the dosage and length of time of administration of antibiotics in the treatment of an infection caused by a gram positive organism.

8. Describe the clinical manifestations of Candida infections and what is the laboratory diagnosis.

9. Answer either A or B

(a) Discuss briefly the clinical symptoms, epidemiology and the pathogenesis of three types of viral diseases of the liver.

(b) What is the clinical and laboratory differential diagnosis between chickenpox and a primary infection with herpes virus.

10. Write a brief note on any three of the following.

Anaphylaxis
T.P.I. test
Coomb's test for univalent antibodies
Schick test
Actinomycosis
Recurrent fever

Second Dental Year

General Pathology

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Second and Third Dental Years

GENERAL PATHOLOGY ✓

All questions of equal value. (12 only of the 14 questions should be answered.)

1. What is an exudate? Give a brief account of its formation and function.

2. Define briefly "allergic inflammation". Give three examples.

3. Describe the gross and microscopic appearance of a tuberculous lesion in a lymph node.

4. (a) What is bacterial endocarditis?
   (b) What diseases or procedures carry a risk of bacterial endocarditis?
   (c) Name two complications of bacterial endocarditis

5. What do you understand by the terms
   (a) Acute glomerulonephritis;
   (b) Subacute glomerulonephritis;
   (c) Chronic glomerulonephritis?

   Give briefly the main gross and microscopic features of each, and the most important clinical feature.

6. Discuss chronic peptic ulcer succinctly under the following headings:
   (a) Gross appearances
   (b) Microscopic appearances
   (c) Serious complications (mention two).

7. Give brief definitions of
   (a) Infection
   (b) Necrosis
   (c) Gangrene.

8. Define:
   (a) Amyloid degeneration
   (b) Cloudy swelling
   (c) Fatty metamorphosis (of the liver).

9. Describe the changes produced in the skin by radiation injury.

10. Discuss briefly the modes and routes of spread of malignant neoplasms.

11. Define briefly:
   (a) Hypertrophy;
   (b) Hyperplasia;
   (c) Atrophy;
giving one example of each.

12. (a) Describe the mechanism of blood clotting.
   (b) Give two examples of diseases due to specific defects of this mechanism.

13. (a) Name two types of leukemia.
   (b) Name two serious complications of leukemia (apart from death).
   (c) Name the organs most often involved.

14. Give a classification of intracerebral hemorrhage.

Second Dental Year

Pharmacology

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Second Dental Year

PHARMACOLOGY

Examiners - G. H. W. Lucas
W. Kalow

Write plainly. Up to 5 marks will be added for neatness, legibility, and concise answers.

Marks

15 1. Compare the undesirable effects of nitrous oxide and thiopentone when administered to produce general anaesthesia.

12 2. Enumerate the action of salicylates.

15 3. Discuss briefly the pharmacology of diuretic, giving examples to illustrate your answer.

15 4. Write brief notes on adrenalin, tubocurarine hydrochloride, phenolphthalein, silver nitrate, pethidine hydrochloride.

14 5. Define the term addiction. Giving examples, discuss briefly the various classes of drugs which produce addiction when the drugs mentioned are given in sufficient dosage.

13 6. Discuss the pharmacology, giving sites of action, of four drugs which in therapeutic doses affect the heart.

Marks

11 7. Prescribe for a patient, twelve tablets of phenobarbitone 50 mg. each; a tablet to be taken in water every six hours as required.

Second Dental Year

Physiology

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Second Dental Year

PHYSIOLOGY

Answer only FIVE of the six questions. The questions are of equal value.

1. (a) Outline the factors and conditions that influence the production of red blood corpuscles in the body.
   (b) Discuss the blood platelets.

2. (a) Show, by means of a table or diagram, the operation of the forces that regulate the interchange of fluid between the blood and the tissues.
   (b) Discuss the early and late effects caused by the rapid loss of about one-fifth of the total blood volume in man.

3. (a) Discuss, giving values where known, the forces involved in the inflation and deflation of the lungs during normal respiration.
   (b) Discuss the maintenance of posture in man.

4. (a) Explain the operation of the factors that regulate the volume of the urine.
   (b) Outline briefly the neurohumoral mechanisms involved in the transmission of impulses at nerve endings.

5. Discuss mastication of food under the headings of:-
   (a) Initiation.
   (b) Effects.
   (c) Relation to salivary secretion.
   (d) Relation to swallowing.

6. Outline the effects on the body of any TWO of the following:-
   (a) Insulin.
   (b) Thyroid hormone.
   (c) Glucocorticoids.
   (d) Adrenaline.

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Third Dental Year

ANAESTHESIA

Part A - Local Anaesthesia

1. (a) Discuss the significance of pre-anaesthetic evaluation in dental practice.
   (b) List the pertinent points that should be covered in this evaluation.

2. (a) Discuss fully the phenomenon of "syncope".
   (b) How do you differentiate "syncope" from a true reaction to a local anaesthetic?
   (c) What is its treatment?

3. Outline in point form the anaesthetic technique to be followed where the lower six anteriors are to be extracted prior to the insertion of an immediate denture.

Part B - General Anaesthesia

4. Discuss the mode of action of a general anaesthetic upon the Central Nervous system.

5. (a) Why is it so important to differentiate the signs of anaesthesia from the signs of the physiologic condition of the patient?
   (b) What are these signs?

Third Dental Year

General Pathology

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Second and Third Dental Years

GENERAL PATHOLOGY

All questions of equal value. (12 only of the 14 questions should be answered.)

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2. Define briefly "allergic inflammation". Give three examples.

3. Describe the gross and microscopic appearance of a tuberculous lesion in a lymph node.

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   (b) Subacute glomerulonephritis;
   (c) Chronic glomerulonephritis?
   Give briefly the main gross and microscopic features of each, and the most important clinical feature.

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7. Give brief definitions of
   (a) Infection
   (b) Necrosis
   (c) Gangrene.

8. Define:
   (a) Amyloid degeneration
   (b) Cloudy swelling
   (c) Fatty metamorphosis (of the liver).

9. Describe the changes produced in the skin by radiation injury.

10. Discuss briefly the modes and routes of spread of malignant neoplasms.

11. Define briefly:
    (a) Hypertrophy;
    (b) Hyperplasia;
    (c) Atrophy;
giving one example of each.

12. (a) Describe the mechanism of blood clotting.
    (b) Give two examples of diseases due to specific defects of this mechanism.

13. (a) Name two types of leukemia.
    (b) Name two serious complications of leukemia (apart from death).
    (c) Name the organs most often involved.

14. Give a classification of intracerebral hemorrhage.

Nutrition and Preventive Dentistry

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Third Dental Year

NUTRITION AND PREVENTIVE DENTISTRY

Answer PARTS A, B, and C in separate examination books.

Marks

NUTRITION PART A

16 1. Calcium, phosphorous, vitamin D and ascorbic acid are believed to affect bone and tooth formation Briefly discuss how these nutrients act. What food recommendations would you make for a five year old child to ensure an adequate intake of these nutrient?

17 2. Briefly discuss Canadian nutrition conditions under following headings:
(a) Availability of nutrients
(b) Occurrence of malnutrition
(c) The need for vitamin and mineral supplements and vitamin-enriched foods.

PART B

17 3. Describe the procedure used in the Preventive treatment of a patient - under the following heading:
(a) Laboratory tests
(b) Diet appraisal - what list of foods is used and how the diet is evaluated.
(c) The more important nutrients provided by each food group.
(d) Diet Consultation.

Marks

PREVENTIVE DENTISTRY PART C

50 Write a brief paragraph under each of the following headings, stressing coverage of main points. Each heading is of equal value.

1. The significance of carbonates in teeth.

2. The organic constituents of dentin.

3. The composition of the surface and sub-surface layers of enamel

4. The mechanism of action of fluorides in the prevention of dental caries.

5. Saliva and calculus formation.

6. The constituents of the dental plaque.

7. The meaning of the D.M.F. index.

8. Functions of saliva.

9. The theories relating to the etiology of dental caries.

10. Experimental evidence that (A) Bacteria, and (B) A suitable substrate for Bacteria, are primary etiological factors in dental caries.

UNIVERSITY OF TORONTO
Faculty of Dentistry

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Annual Examinations, 1961

Third Dental Year

ORAL PATHOLOGY

No Paper Available

63

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Third Dental Year

SURGERY

1. Discuss the general and local factors which may influence healing of an incision.

2. Discuss shock
    (a) etiology
    (b) Clinical features
    (c) Treatment.

3. Describe obstruction of the sub-mandibular duct under the following headings:
    (a) etiology
    (b) Clinical features
    (c) Treatment.

4. DEFINE:
    (1) Lymphangitis
    (2) Cellulitis
    (3) Septicaemia
    (4) Closed fracture
    (5) Haematuria
    (6) Internal haemorrhage
    (7) Gangrene
    (8) Malignant tumour.

Fourth Student Year

Paper #1

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Fourth Dental Year

PAPER #1

Marks

PROSTHODONTICS

15 1. What instructions should be given to a patient during the appointment when complete maxillary and mandibular dentures are inserted?

2. Answer briefly the following questions:

3 (a) What are the causes of frequently recurring soreness on the crest of the lower ridge under a complete denture?

3 (b) Why do some patients complain that they cannot speak properly with their complete dentures?

3 (c) Why do some patients complain that their complete dentures clatter or knock together when they speak or eat?

3 (d) Why do some patients complain of excessiv salivation when wearing complete dentures?

3 (e) Why do some patients complain of a burning sensation in the mouth when wearing complete dentures?

15 3. (a) State briefly the essential steps requisite to the planning of a partial prosthesis.

5 (b) What are the indications for a transitional or treatment partial denture?

Marks

OPERATIVE DENTISTRY

18 1. (a) Enumerate the indications for a gold foil, a silicate and a self curing resin restoration in the proximal of an anterior tooth.

(b) Draw the outline of a sheet of rubber dam to be used to isolate the lower right first molar; indicate the location of the necessary holes to be punched for ideal placement.

(c) List five materials for tissue retraction for a hydrocolloid impression.

18 2. (a) Describe the method of mixing zinc oxyphosphate cement for the cementation of a casting where a very slow set is desired.

(b) Describe 2 materials which may be used for pulp protection just prior to cementation of a jacket crown.

(c) Draw the cavo-surface margin of a cavity prepared for (1) silicate; (2) gold foil; (3) gold inlay; (4) amalgam; (5) self curing resin.

14 3. A female patient age 16 was injured in an automobile accident, resulting in the loss of the upper left lateral and central. The upper right central was fractured at the junction of the gingival and middle thirds. The upper left cuspid and the rest of the dentition was undamaged and otherwise normal. Discuss briefly how you would make an esthetic fixed restoration.

(Limit answers to short concise statements and not over half a page.)

Fourth Dental Year
Paper #2

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Fourth Dental Year

PAPER #2

Marks

MEDICINE

15 1. Discuss causes, methods of spread and prevention of:
   (a) Typhoid Fever
   (b) Serum Hepatitis.

15 2. Discuss Duodenal Ulcer under the following headings:
   (a) Causes
   (b) Signs and Symptoms
   (c) Complications
   (d) Treatment.

20 3. Discuss the indications for, the factors influencing the choice of, and possible complications from the use of antibiotics in dentistry.

Marks

PERIODONTICS

15 1. Outline the indications and procedures for achieving new attachment in deep periodontal pockets.

15 2. Outline the causes and treatment of recession of the gingival tissues.

20 3. A patient, aged 32, who has been taking dilantin sodium for twelve years for treatment of epilepsy has marked hyperplastic enlargements of the gingival tissues which are beginning to interfere with occlusal function. History indicates that there was no enlargement of the gingival tissue preceding institution of dilantin therapy. The teeth have a low caries experience and satisfactory fillings. Outline a treatment plan. Use drawings to indicate technical procedure and result.

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Fourth Dental Year

PAPER #3

Marks

ORTHODONTICS

20 1. (a) Classify the various types of crossbites.

(b) Outline the differential diagnosis of crossbite.

(c) Indicate the correct treatment approach for each type of crossbite. (Do not discuss mechanotherapy.)

30 2. (a) Identify and mark the commonly used cephalometric landmarks on tracing A.

(b) Using conventional anthropological classification describe these two profiles, A and B.

(c) How could you determine whether or not each is within its range of normalacy?

(d) Assuming normal co-operation on the part of the patient, give reasons why one of these cases would be more difficult to treat than the other.

(over)

Marks

PEDODONTICS

20 1. In point form define OR describe in as few words as possible:
- (a) Accessional dentition
- (b) Succedaneous dentition
- (c) Haemangioma
- (d) Apthous ulcer
- (e) Supernumerary teeth
- (f) Supplementary teeth
- (g) Ectopic eruption
- (h) Suppressed teeth
- (i) Dentinogenesis Imperfecta
- (j) Amelogenesis Imperfecta.

2. An eighteen month old child arrives at your office having fallen and displaced A⌋ ⌊A apically. Outline in point form:

4 (a) Treatment

2 (b) Reasons for treatment

4 (c) The advice which should be given to the parent regarding future treatment.

14 3. Clinical and x-ray examination of an eight year old child revealed the following:

(a) 6⌉ has an occlusal cavity extending $\frac{1}{2}$ m.m. into dentine.

(b) E⌉ has a large distal occlusal cavity not involving the pulp.

(c) ⌊6 has a large mesial occlusal cavity alm involving the pulp.

(d) ⌊D has a large occlusal cavity involving the pulp and exhibiting a sinus on the buccal. The upper left permanent lateral has fully erupted.

(e) 6⌋ has two occlusal pits showing slight sign of caries in each.

(f) ⌈E has to be extracted because of pulp involvement - no history of pain.

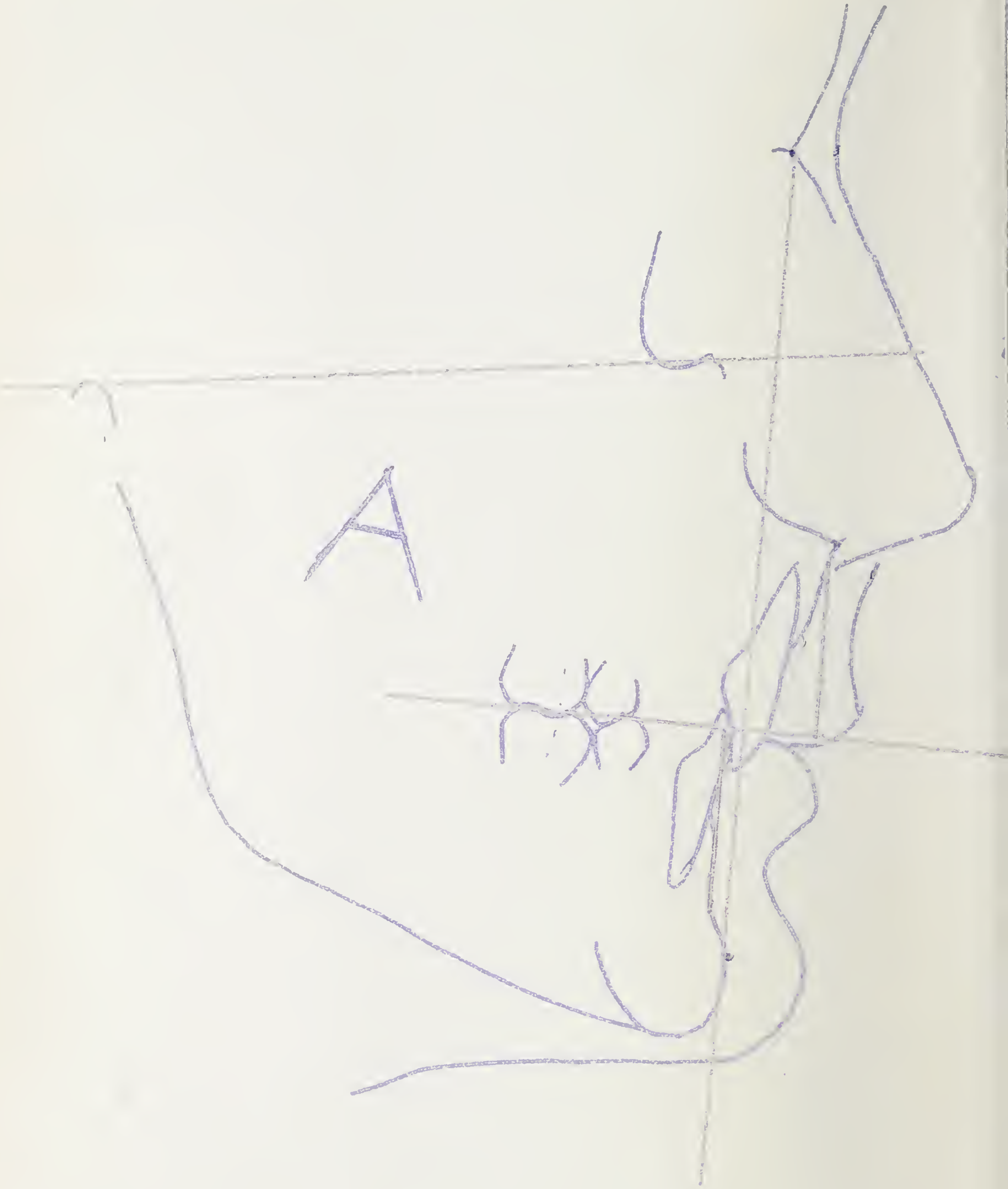
Outline in point form a suitable treatment plan for the above history.

Marks

4. A four year old child has a parallel terminal plane relationship in the second deciduous molars, with no primate spaces.

3 (a) Into what relationship will the first permanent molars erupt?

3 (b) What will the final molar relationship of this case be, assuming that there is no premature loss of teeth?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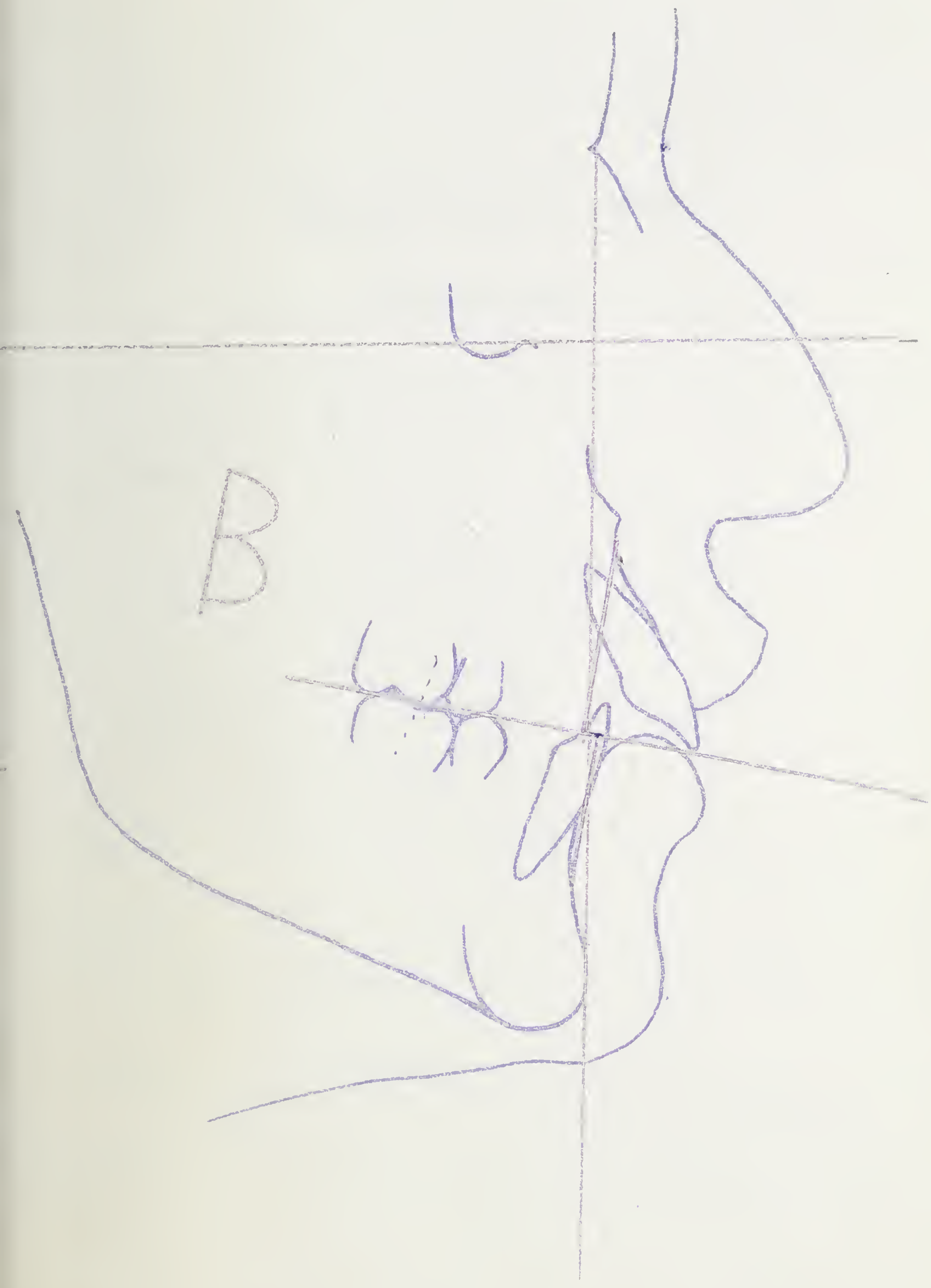
B

Fourth Dental Year

Paper #4

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Fourth Dental Year

PAPER #4

Marks

DENTAL ORAL SURGERY AND ANAESTHESIA

10 1. Describe the correct surgical management of a patient that might present with any four of the following conditions:

(a) A history of coronary heart disease and hypertension.
(b) A history of Rheumatic Fever.
(c) A history of diagnosed Diabetes.
(d) Pregnancy of 4 months duration.
(e) Haemophilia.
(f) Severe infection and oral sepsis.

10 2. (a) Define: (1) Cyst
(2) Benign tumour
(3) Malignant tumour.

(b) Give a concise classification of cysts of the oral cavity.

10 3. List the radiographic projections necessary to determine the presence of jaw fractures. Give the reasons for requesting each projection.

10 4. (a) Discuss the significance of a proper physical evaluation of a patient preceding a general anaesthetic.

(b) List in point form the routine followed in such an examination.

Marks

10 5. Describe in detail the correct surgical procedure for the removal of an upper, second molar, which is standing alone with the buccal alveolar bone abnormally heavy and the antrum abnormally large and low and extending well back into the tuberosity. Assume that the alveolar bone is hyper-calcified and that the tooth has long and divergent roots.

RADIOLOGY

16 1. (a) Enumerate the radiographs which may be necessary to investigate a lesion, which is suspected of being neoplastic, in the molar region of the mandible.

(b) How would you take these radiographs?

17 2. Describe the radiographic changes which may be associated with inflammation of bone.

17 3. Give an account of the possible ill-effects of radiation. Discuss the steps which can be taken to minimize these dangers.

Fourth Dental Year
Paper #5

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

Fourth Dental Year

PAPER #5

Marks

DENTAL PUBLIC HEALTH

Answer questions 1 and 2 and any one of questions 3, 4, or 5.

10 1. Compare the similarities of procedure in public health practice and private practice in Dentistry.

10 2. Describe the structure and functions of the official agency of the profession of Dentistry in Ontario.

Any one of 3, 4, or 5.

3. In the Dental Public Health Policy of the Canadian Dental Association, prevention measures are said to fall into four categories. State these categories giving one example for each.

5 4. Dental services available to the public are reflected in the dentist-population ratio. List steps the profession should take to improve the present adverse situation.

5. List four areas of professional responsibility of the dentist in the community.

Marks

ENDODONTICS

5 1. How do you determine if a root-canal is ready for obliteration?

2. What is the optimal point at which the root-canal filling should terminate?

5 (a) Where a vital pulp was originally present.

5 (b) Where a necrotic pulp was originally present.

5 (c) Give the reason for each decision.

5 3. In a vital pulpectomy case involving an upper central incisor, describe the precautions which you would take, up to the placement of the final silicate, to reduce discolouration of the crown to a minimum.

PREVENTIVE DENTISTRY

13 1. Outline the procedures that should be followed in the control of rampant dental caries in a young patient.

12 2. What can the patient and dentist do to prevent and/or control periodontal disease?

ETHICS, JURISPRUDENCE AND PRACTICE MANAGEMENT

10 1. What methods may a newly located dentist follow in making himself known in his community?

15 2. Discuss the role of auxiliary personnel in private dental practice.

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1961

FIRST YEAR - DENTAL HYGIENE

DENTAL HISTOLOGY

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1. Describe the microscopic structure of enamel.

2. (a) Define lamina dura and briefly state how it responds to functional stimuli.

   (b) Describe epithelial attachment. What is its relation to the gingiva and to the tooth surface.

   (c) What structure is essential to root formation? Remnants of this structure in the periodontal membrane are known as the ....

   (d) Where and what is Tomes' granular layer?

   (e) Describe the function, location and structure of Korff's fibers.

3. Name the specific parts of a tooth germ. Give the tissue components of each part.

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1961

FIRST YEAR DENTAL HYGIENE

DENTAL PROPHYLAXIS

Marks.

20 1. a) Draw and label the main components of a healthy periodontium.

b) Draw in greater detail the part of the periodontium which is coronal to the crest of the alveolus on a labial or lingual surface of a tooth.

15 2. Outline a classification for gingivitis.

20 3. a) List procedures which may be included as oral hygiene measures.

b) Discuss briefly the effect of diet in the control of dental caries and periodontal disease.

c) Discuss briefly the oral prophylaxis and the personal care by the patient as measures in the control of dental caries and periodontal disease.

15 4. a) With drawings, describe each of the types of scalers.

b) Indicate briefly areas in which each type of scaler is efficiently employed.

15 5. Describe sequence of events leading to formation of a periodontal pocket.

15 6. Using drawings, describe the effects of displacement pack.

UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Pharmacy

ANNUAL EXAMINATIONS, 1961

First Year

ENGLISH COMPOSITION

Examiners - The Staff in English

Write an essay of approximately 1,000 words on one of the following statements. You may support the statement, refute it, or modify it. The essay should be carefully organized, coherent, and logical. Paragraphing, sentence structure, basic grammar, spelling, and punctuation are important.

(1) Compulsory health insurance for all citizens in a nation necessarily leads to government control and operation of all health services (medical, dental, pharmaceutical).

(2) "Genius is an infinite capacity for taking pains."

(3) In theory satire has ample justification as a literary form, but there are many abuses and limitations in its practice.

(4) Many professional practitioners (physicians, dentists, pharmacists, lawyers) are like salesmen in that much of their success depends not only on being liked, but on being well-liked.

English Literature.

UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Pharmacy

ANNUAL EXAMINATIONS, 1961

First Year

ENGLISH LITERATURE

Examiners - The Staff in English

Answer FOUR questions in all: question A, and one from each of parts B, C, and D. Students are advised to give 30 minutes to answering each question, and 30 minutes to planning and re-reading answers.

PART A

1. Identify the speaker and the situation, and comment in a sentence or two on the significance of five of the following quotations:

(a) I have not one word of comfort -- you deserve this. You have killed yourself.

(b) I only with an oaken staff will meet thee.

(c) When the soul of a man is born in this country there are nets flung at it to hold it back from flight.

(d) O, my fortunes have
Corrupted honest men!

(e) I realized what a ridiculous lie my whole life has been!

(f) Well, the matter is, sir, that you can't take a girl up like that as if you were picking up a pebble on the beach.

(g) Too live the life grew, golden and not gray.

PART B

2. Compare Antony's relations with Cleopatra and Samson's with Dalila, showing their significance for the major issues in _Antony and Cleopatra_ and _Samson Agonistes_.

3. "Whatever weaknesses in character he may have, the tragic hero possesses qualities which win not only our sympathy but also our admiration." In the light of this statement, compare _two_ of the following: Antony, Samson, Willy Loman.

PART C

4. "Gulliver is not Swift but the instrument of Swift's satire." Discuss.

5. "Fielding illuminates his characters by establishing contrasts between them." Discuss.

6. Discuss the relation between character and setting (or environment) in _Wuthering Heights_ OR in _A Portrait of the Artist as a Young Man_.

PART D

7. Indicating differences in the techniques of the poems, compare the treatment of the theme of art in _two_ of the following: "Ode on a Grecian Urn", "Andrea del Sarto", "Terence, This is Stupid Stuff", "Musée des Beaux Arts".

8. Analyse _one_ of the following poems, considering such matters as theme, mood, form, and techniques: "The Rape of the Lock", "The Bishop Orders his Tomb", "Sailing to Byzantium", "The Love Song of J. Alfred Prufrock".

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1961.

FIRST YEAR DENTAL HYGIENE.

FOOD CHEMISTRY

Examiners: C.G. Elliott
J. Scott

ALL QUESTIONS TO BE ANSWERED

1. (a) Tell how you would prepare one liter of each of the following solutions:
   (i) 2N HCl (ii) 3% W/V NaCl (iii) 0.5 molar NaCl
   H - 1 Cl - 35 NA - 23

   (b) Explain the meaning of the following abbreviations when referred to chemicals: U. S. P.; Tech.; mgm; ppm.

   (c) Discuss Calcium and ONE of the following elements with respect to functions in the body and food sources:
   Iodine, Iron, Fluorine.

2. (a) Give an example of, and structural formula for, each of the following substances:
   (i) carboxylic acid (ii) alkene (iii) ketone (iv) soap (v) ester.

   (b) Give structural formulae for the following organic compounds:
   (i) ethanal (ii) oxalic acid (iii) glycol (iv) acetylene (v) sodium acetate.
   Each of these organic compounds is representative of a group of similar compounds. In a sentence indicate characteristic features of each of these groups.

   (c) Represent the following compound structurally using dots for electrons:
   $CH_3CH = CH_2$

3. (a) How do hydrochloric and acetic acids differ in their acidic properties? How are they similar?

   (b) What do we mean by the term pH? Why is pH particularly useful in food and biological chemistry? Give examples.

   (c) Give structural formulae for two compounds which constitute a fat molecule. Show how these are linked to form a fat.

   (d) Discuss briefly: hydrogenation, rancidity.

4. (a) Construct a table showing a classification and naming system for carbohydrates.

   (b) List five common carbohydrates; classify them; and, name a food in which each occurs.

   (c) Give a structural formula for glucose.

6. (a) With reference to proteins explain briefly the following terms: amino acid, peptide bond, isoelectric point, conjugated protein. Give structural formulae and examples where possible.

   (b) (i) What are enzymes? How are they named?
   (ii) What is the significance of pH and temperature with respect to enzyme action? Give examples.
   (iii) List four digestive enzymes and the reactions they catalyze.

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FIRST YEAR DENTAL HYGIENE

GROSS AND DENTAL ANATOMY

Part A.

1. The following pairs of teeth have certain anatomical differences which would allow you to distinguish between them. What are they?

   6┐ and e┐

   3┘ and 3┐

   4┘ and 5┘

2. (a) Which teeth are present in the mouth of a nine year old child?

   (b) When does the lower first permanent molar begin to calcify?

3. Name the anatomical features of the tooth crowns which are designed to protect the supporting structures around the root. Describe each feature and explain its function.

4. How does the upper right first permanent molar meet the lower right first permanent molar when the teeth are in centric occlusion?

Part B. WRITE IN SEPARATE BOOK.

1. Give an account of the temporomandibular joint under the headings:

   a) bony parts.
   b) ligaments.
   c) movements.
   d) muscles acting on the joint.

2. State briefly the:

   a) motor nerve supply to the tongue.
   b) blood supply of the lips.
   c) sensory supply to the upper molar teeth.
   d) branches of the external carotid artery.
   e) location of the parotid duct opening.

3. Write brief notes on the following:

   a) heart valves.
   b) the bronchi.
   c) the uterine tube.
   d) the gall bladder.

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First Year Dental Hygiene

PSYCHOLOGY I n

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Second Year Dental Hygiene

BACTERIOLOGY

1. (a) Outline an experiment to determine the efficiency of a gauze mask in reducing the transmission of bacterial infection.
   (b) What circumstances are likely to impair the efficiency of masks?

2. (a) How could you determine experimentally whether boiling for 10 minutes is adequate for the destruction of spores in hypodermic syringes?
   (b) If boiling for 10 minutes is inadequate, what time, temperature and method of sterilization would you recommend?

3. (a) Give examples of spore-bearing pathogenic bacteria.
   (b) What are their special requirements for growth?
   (c) What medium is used for their culture?

4. (a) How would you determine the amount of chlorine required for 100 gallons of water?
   (b) Why is a test immediately after chlorination not reliable?

5. Describe the following steps in obtaining a pure culture of staphylococci from a mixture of bacteria in an infected wound:
   (a) primary culture of the swab from the wound,
   (b) isolation of the pure culture from the primary culture,
   (c) evidence that a pure culture has been obtained.

6. (a) How could a strain of staphylococcus be tested for sensitivity to various antibiotics?

6. (b) Why is it desirable to obtain the culture before the patient is treated with antibiotic, even if treatment is begun before the sensitivity test can be completed?

7. (a) In immunization against smallpox, what is the nature and source of the immunizing agent?
(b) In what circumstances may this agent lose its ability to immunize, and how may this be detected?
(c) In persons who have been successfully vaccinated, what is the explanation and significance of an early reaction following revaccination?
(d) At what age should a child be vaccinated and revaccinated?

8. (a) Outline the essential steps in the preparation of tuberculin, including standardization.
(b) If a child becomes sensitive to the tuberculin test, what further investigation is indicated?

9. (a) How may the motility of bacteria be tested in culture?
(b) How do motile bacteria differ in morphology from non-motile forms?

10. (a) What is understood by the term "antigen" and in what sense is the reaction between antigen and antibody specific?
(b) Give examples of antigen-antibody reactions.

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Dental Hygiene II

DENTAL PUBLIC HEALTH

Marks

15 1. What association have the following men had with dentistry and dental health?

Pierre Fauchard; Dr. H.G. Wells; Dr. W.D. Millar; Dr. W.B. Day; Dr. W.G. Ebersole; Dr. A.C. Fones; Dr. F.S. McKay; Dr. J.W. Knutson.

15 2. Under what legislation and under whose responsibility do the following services fall?

(a) Dental care of the Six Nations Indians at Brantford.

(b) The dental health counselling by a dental hygienist in the Wellington County Health Unit.

(c) An immigrant with toothache detained in quarantine at an Atlantic port-of-entry.

(d) Dental services in an Ontario Hospital for mentally retarded children.

(e) An Eskimo with a fractured jaw just arrived in Aklavik.

20 3. (a) In face-to-face teaching what advantages for teaching does the dentist-patient or hygienist-patient relationship hold?

(b) What important educational principles should be followed when visual aids are used in teaching?

15 4. (a) State the three purposes of dental inspection as conducted in Toronto elementary and secondary schools.

(b) State the five classification of dental health indices.

(c) Define and distinguish between "Incidence" and "Prevalence" of dental caries.

15 5. (a) State four reasons for sampling a population in order to obtain reliable dental health data.

(b) How would you assure yourself of "representative" information when utilizing a sampling technique?

(c) State the three sampling techniques commonly employed in dental surveys.

20 6. (a) What do you consider as preventive procedures in the general practice of dentistry?

(b) List four preventive practice procedures used in communicable disease control.

(c) In a community where a dental public health programme is in operation, what services would you expect a family living there could utilize?

(d) What was the original basic concept of prepaid health insurance?

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ANNUAL EXAMINATIONS, 1961

SECOND YEAR - DENTAL HYGIENE

PATHOLOGY.

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1. Describe the several physiological processes that help in arresting a haemorrhage.

2. In what ways can an inflammatory reaction be beneficial?

3. Describe the origin and development of a radicular cyst.

4. Describe:
    (a) One hereditary dental anomaly.
    (b) One acquired dental anomaly.

5. Name the type of cell involved in the following neoplasms:
    (a) Papilloma
    (b) Leiomyoma
    (c) Lipoma
    (d) Adenoma
    (e) Chondroma

6. Define and give a classification of odontomes.

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ANNUAL EXAMINATIONS, 1961

Second Year Dental Hygiene

PHARMACOLOGY

Examiner - C. Reynolds
Total of 50 marks

1. What is meant by the following terms? Give one example of each.

    a) Caustic

    b) Styptic

    c) Astringent

    d) Antiseptic

2. a) Give one example each of the following analgesic types.

    1) Mild

    2) Medium strength

    3) Strong

   b) What problem in regard to surgery might be presented by a patient who has been taking ASPIRIN over an extended period?

3. Give two possible toxic effects of:

    a) Local anaesthetics

    b) Vasoconstrictors

4. a) Name three antibiotics which may be prescribed by a dentist.

   b) What side-effects might occur when a patient is taking antibiotic treatment?

5. What is the purpose of the pre-operative administration of:

    a) Atropine

    b) Barbiturates

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ANNUAL EXAMINATIONS, 1961

SECOND YEAR - DENTAL HYGIENE

PHYSIOLOGY

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1. (a) With the aid of a diagram indicate the main reactions which take place during the coagulation of blood.

   (b) Outline the method of typing blood according to the ABO system of blood grouping.

2. Discuss the origin and action of the following substances in the body:

   a) Steapsin
   b) Cholecystokinin
   c) Glucagon
   d) Aldosterone
   e) Ptyalin

3. (a) What is an extrasystole?

   (b) In what part of the vascular system does the greatest drop of blood pressure occur? Why?

   (c) What is the role of the semi-lunar valves in systole and in diastole?

4. Discuss the role of the liver in protein, carbohydrate and fat metabolism.

5. (a) Discuss the chemical factors which modify the activity of the respiratory centre and outline the mechanism whereby their actions are brought about.

   (b) Describe the mechanisms whereby fluid balance is maintained in the body.

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Annual Examinations, 1961.

Second Year Dental Hygiene

PREVENTIVE DENTISTRY

USE A SEPARATE BOOK FOR EACH QUESTION.

1. A. Describe what treatment should be advised when the following deciduous teeth are lost prematurely and give your reasons.

(i) $\underline{e\rvert}$ in an eleven year old child.

(ii) $\overline{d\rvert}$ in a four year old child.

(iii) $\underline{a|a}$ in a three year old child

B . Define the following:

(i) Ankylosed Tooth

(ii) Supernumerary Tooth

(iii) Amelogenesis Imperfecta

(iv) The basic causes of fear in a young child.

2. Briefly discuss the role of nutrition in the formation and maintenance of bones and teeth under the following headings:

(a) List the nutrients involved and discuss the function of each in the formation and maintenance of bones and teeth.

(b) How do Canada's Food Rules insure an adequate intake of these nutrients for children and adults?

3. Indicate the role of the Hygienist in the Orthodontist's office, before, during and after treatment has been completed.

4. The expected incidence of Dental Caries may be influenced in two ways;
1. - applicable to the un-erupted teeth, and
2. - to the teeth after eruption. Discuss.

5. Discuss in detail the factors involved in giving dietary instructions to patients - under the following headings:-

(a) Methods of diet analysis

(b) Basis for diet analysis and correction.

(c) Factors to be considered in recommending changes in food intake.

(d) L. Acidophilus counts.

UNIVERSITY OF TORONTO
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First Year

SOCIOLOGY Ia
Introduction to Sociology

Answer Question # 1 and any three (3) others

1. Explain or define eight of the following, using specific examples whenever possible:

   (a) Primary group
   (b) Social class and caste
   (c) Status and role
   (d) Consanguine family
   (e) Accomodation and assimilation
   (f) Family of orientation
   (g) Social mobility
   (h) Population of incipient decline
   (i) Ethnocentricism
   (j) Role conflict
   (k) Invasion and succession
   (l) Cultural lag

2. Explain fully the 'concentric zone' theory of urban growth. Does this theory present an accurate picture of the modern city?

3. Discuss the role of the family in:
   (a) socialization
   (b) social stratification

4. Define the following concepts and show their usefulness in analysing behaviour by reference to specific studies:
   (a) culture
   (b) sub-culture
   (c) acculturation

5. Examine critically the expression 'population explosion' with regard to time and place. Describe some of the determinants of population growth and show how they are interrelated.

6. What are the factors that contribute to opportunities for social mobility in a given society, and what are the consequences of social mobility for both the society and the individual?

OR

The North American system of social stratification has been described as an 'open class' system. Discuss with particular reference to:
 (a) the functional necessity of social stratification.
 (b) the means of social mobility in North America
 (c) the caste element present in North American society.
 (d) local class structures in North America.

7. You are a sociologist called upon to study one of the following:
 (a) French-Canadian and English-Canadian relations,
 (b) Crime and delinquency
 (c) Immigrants in Canada
 (d) Sunday movies in Ontario.

Select one of these subjects; and define and illustrate the sociological concepts which are relevant for an analysis of the subject selected.

8. How does the sociologist account for the universality of religion? Describe the relationship between magic, science and religion.

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